Mounting instructions Directions for use

EMERGENCY POWER LAMP

Triaflex / Triaflex R96 emergency power lamp
Trigenflex / Trigenflex R96 emergency power lamp
Mach M3 F- / DF- / F/H- / DF/H emergency power lamp
Mach 380 F- / DF- / F/H- / DF/H emergency power lamp

Accessories
Clamp rail _____ Order no. 74961002
Table _____ Order no. 74961004

Dr. Mach **GmbH u. Co., Flossmannstrasse 28, D-85560 Ebersberg**
Tel.: +49 (0)8092 2093 0, Fax +49 (0)8092 2093 50
Internet: www.dr-mach.com, E-mail: info@dr-mach.de

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1. Instructions for use / operating Instructions for sealed lead - acid batteries

1. Identification, operating data

						Type of battery:	BTX 12-24
Block voltage:	12	V	**Length**	166	mm	**Delivery date:**	12-2002
Number of blocks:	2		**Width:**	175	mm		
Number of cells:	12		**Height**	125	mm	**Assembly date:**	12-2002
Nominal voltage U_N	24	V	**Capacity* C_{20} (1.8 V/cell):**	26	Ah#	**Assembled by:**	PERL emergency current
Block weight:	9.2	kg	**Capacity* C_{10} (1.8 V/cell):**	24	Ah		
Electrolyte density	1.3	kg/l	**Capacity* C_3 (1.75 V/cell):**	20	Ah	**Commissioning date:**	
Nominal temperature	20	^{0}C	**Capacity* C_1 (1.75 V/cell):**	16	Ah	**Commissioned by:**	
Ideal room temperature	20	^{0}C	**Torque on installation.:**	4.5	Nm		
Antimony content:	<<1	%	**Torque in service:**	3.6	Nm	**CE-characteristic by:**	PERL emergency current
Service interval:	see 7.2		**Ventilation calculation:**	DIN/EN 50272-			

= Reference capacity (nominal capacity) according to DIN/EN 60896-1 | (x V/cell) = Voltage at end of discharge | * = for 25^{0}C

2. Safety instructions

2.1 Maintenance free / pressure relief valves

The sealed battery blocks require no maintenance. Topping up with water is not allowed. Pressure relief valves are used as stoppers. Opening them results in the destruction of the battery.
However, the battery requires regular inspection and maintenance (see Section 7).

2.2 Prohibitions, requirements and disposal instructions

1 2 3 4 5 6 7 8

1 Observe the Instructions for Use.

2. When working on batteries wear protective glasses and clothing as specified in the Accident Prevention Instructions and DIN/EN 50272-2 (VDE 0510).
3. Smoking is forbidden, no naked flames, embers or sparks are allowed in the vicinity of the battery.
4. There is a danger of explosion and fire so avoid short circuits. Metal parts of the poles are always live, therefore do not put tools or other items on the battery.
5. The electrolyte, sulphuric acid, is very corrosive. There is no possibility of contact with the electrolyte unless the battery is damaged If the casing is defective the electrolyte retained in the fleece behaves like liquid electrolyte.
6. Any droplets of acid that gets into the eye or on the skin must be rinsed out or washed off immediately with a copious supply of water. Then get to a doctor without delay. If clothing is polluted wash it immediately with water.
7. Block batteries are heavy. Take care to put them on a safe base. Only use suitable transport equipment.
8. Old batteries with this sign can be recycled and must be put through the recycling process. Old batteries, which are not put through the recycling process should be disposed of in accordance with all the regulations as special waste products.

3. Storage

All battery blocks are delivered in the charged condition. If they are not to be put into service immediately but are to be put in store for a long time they should be stored in a dry, clean and frost free place. Sealed lead acid batteries are best given a trickle charge when stored. If this is not the case, they must be given an equalisation charge (see Section 6.1.4) at the latest when they sink to 12.5 V open circuit voltage, or every 6 months depending on which occurs first.

4. Commissioning

The ideal operating temperature is 20^{0}C. Higher temperatures shorten the life of the battery, lower temperatures reduce the available capacity. The battery blocks must be so set up, that within the same blocks temperature differences of >3^{0}C cannot occur. Before commissioning, the batteries should be examined for damage, correct pole connection, solid fit of the connectors (for torques see table above) and secure contacts. If necessary, pole covers should be fitted. After the charging device and loads are switched off the correct poles of the battery should be connected to the d.c. supply. Switch on the charging device and charge the battery as specified in Section 6.1.

The regulations in DIN/VDE 0107, DIN/VDE 0108, DIN/EN 50272-2 (VDE 0510-2) or DIN/VDE 0510-7 as well as IEC 896-2 (DIN/EN 60896-2) should be observed if necessary.

5. Operation

The regulations of DIN/VDE 0107, DIN/VDE 0108, DIN/EN 50272-2 (VDE 0510-2) or DIN/VDE 0510-7 as well as IEC 896-2 (DIN/EN 60896-2) should be observed when operating static sealed batteries.

6 Charging, discharging

6.1 Charging

Any of the charging procedures with their limits as specified in DIN 41773 (IU-characteristic), DIN 41774 (W-characteristic) or DIN 41776 (I-characteristic) can be used. Depending on the equipment the batteries in this equipment are charged with the IU-characteristic.

6.1.1 Maintaining the full load condition (maintenance charge)

Equipment with the properties specified in DIN 41773 (IU-characteristic) should be used. The equipment should be so set up, that the cell voltage$_{(20°C)}$ = 2.3 V/cell (permissible deviation: 1%). If the battery temperature is continuously higher or lower due to higher or lower environmental temperature, the charging voltage must be adjusted to:

Charging voltage $_{(\text{more than } 20°C)}$ = 2.3 V/cell - 0.004 V • ΔT (ΔT = Temperature difference above 20°C)
Charging voltage $_{(\text{less than } 20°C)}$ = 2.3V/cell + 0.004 V • ΔT (ΔT = Temperature difference below 20°C)

Example: Temperature lies predominately at 15°C, charging voltage = 2.3 V/cell + 0.02V/cell = 2.320 V/cell. Temperature lies predominately at 30°C, Charging voltage = 2.3V/cell - 0.040 V/cell = 2.260 V/cell.

6.2 Discharging

The correct discharging currents are obtained from the capacities as specified in $I_{(Disch..)} = C_t/t$. Unless other data is available, not more than the correct capacity can be taken out. In order to avoid a deep discharge and consequent destruction of the battery, it must be disconnected from the loads before reaching the discharge finishing voltage that is dependent on the bridging time. Guide values are:

Bridging time	Discharge finishing voltage	Bridging time	Discharge finishing voltage
> 3 h	1,80 V/cell	20 min. – 1 h	1,67 V/cell
1-3 h	1,75 V/cell	< 20 min.	1,60 V/cell

The connection of the loads should only be done after the power supply has been restored**. After discharge, even partial discharge, the battery should immediately be charged.**

7. Battery maintenance, inspection of the battery equipment

7.1 Battery maintenance

The battery should be kept clean and dry in order to prevent leakage currents. The cleaning of the battery should be done in accordance with the ZVEI-leaflet “Cleaning of batteries“. Plastic parts of the battery may only be cleaned with clean water.

7.2 Inspection of battery equipment

It is recommended that every 3 months the following work should be done and documented:

- Visual inspection of the battery regarding cleanliness, damaged battery blocks and loose contacts
- Measurement of charge maintaining voltage of the battery and the individual battery blocks
- Measurement of the surface temperature of the battery blocks
- Measurement of the temperature in the battery room.

The following work should be carried out and documented at least every 12 months (guarantee condition):

- All connections should be tightened to the recommended values (see table under Item 1) by a torque spanner,
- The tests for 6 months should be repeated
- If possible, measure the voltage of the battery and the individual battery blocks with the charging device switched off.

Only in collaboration with the System Manufacturer or someone authorised by him:

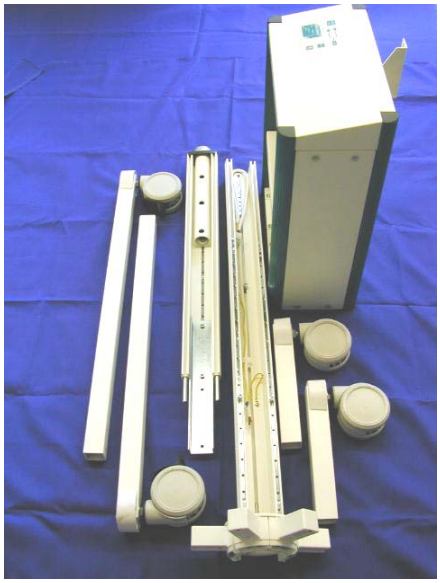
- Record the battery block voltages during the discharge of the battery (capacity test).

When tests are carried out they should be done as specified in IEC 896-2 (DIN/EN 60896-2). Instructions specified in DIN/VDE 0107 and DIN/VDE 0108 should also be observed.

8. Guarantee

Guarantee claims are only accepted if the maintenance and servicing work have been properly carried out. For guarantee claims at least the following data/documents must be provided: the reason for the complaint, contract number and the last two maintenance reports. Defective battery blocks must be sent back for defect analysis carriage paid.

If the Instructions for Use are not followed, e.g. if the room temperature is too high, the batteries are left discharged for a long time or stored in unsuitable conditions, trickle charged at the wrong voltage or the service intervals and instructions are not observed, the guarantee becomes invalid.



Extent of supply:

- **Emergency power unit**
- **Allan key / DIN 911 –5 long –3 and –10**
- **Spring arm / central spring arm**
- **Lamp Mach 380 / Mach M3 / Trigenflex / Triaflex**
- **Pre-mounted stand tube**
- **Two long feet with brakes**
- **Two short feet without brakes**
- **1x cable binder 2,7mm**
- **Spare parts: 1x fuse 6x35, 10A secondary, and 2x battery fuse 5x20, 1,6A**

These installation instructions must be kept in a safe place together with the relevant operating instructions for the light, so they can be consulted whenever necessary.

2. General instructions

All Dr. Mach emergency lighting systems are supplied with all parts necessary for installation and connection.

The supporting pole is divided into two parts.
The battery box is supplied with a connecting cable and earthed plug.

The plugs used must be installed in accordance with the requirements of IEC or VDE 0107.

A check should be made to ensure that there is a standard electric socket within the working area of the light.

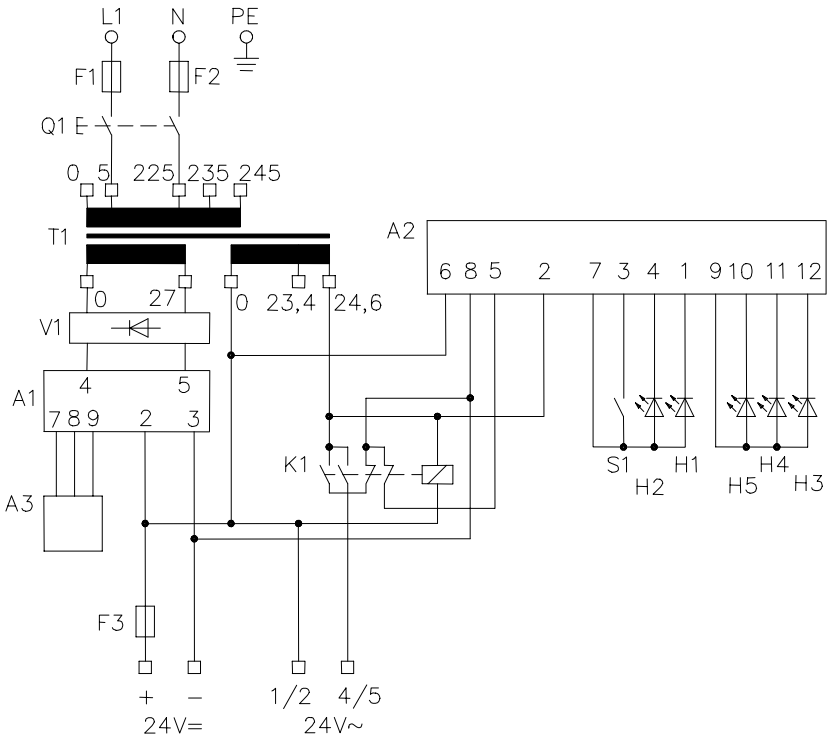
The light must be kept continuously connected to the mains, as otherwise it will not be permanently available.

Maintenance of the supporting pole and any special installation work on the sliding contacts can only be carried out by us or by our appointed technicians.

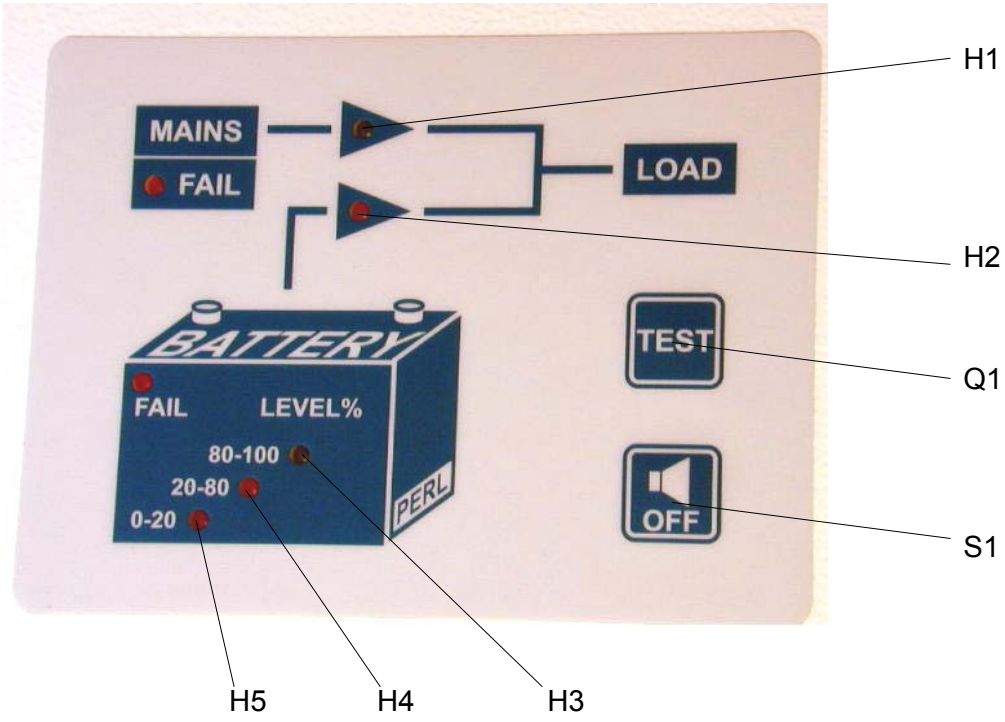
The manufacturer only guarantees the safety of the light if repairs and alterations have been carried out by him or by a technician who adheres to the safety regulations.

The manufacturer shall have no legal liability for injury to persons or damage to property if the light is operated wrongly or in any other way or used for any other purpose than that for which it was designed.

3. Wiring diagram



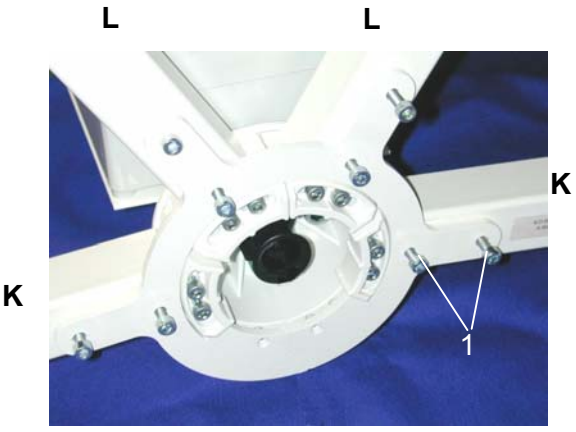
4. Controls



5. Key to the wiring diagram

A 1	Charge regulator
A 2	Electronic control module
A 3	Output level for charge regulator
F 1	Mains fuse
F 2	Mains fuse
F 3	Battery fuse
H 1	LED green to show mains operation
H 2	LED yellow to show battery operation
H 3	LED green to show battery fully charged
H 4	LED yellow to show battery charged 80% to 20%
H 5	LED red to show battery discharged
S 1	Acknowledgement button
Q 1	ON/OFF switch for testing
T 1	Transformer
V 1	Rectifier
K 1	Switchover protector

6. Mounting the stand tube and the battery box to the stand foot



Loosen two screws **1** before mounting each foot. Then insert the four feet and fix them with the screws (**do not tighten**!)

For mounting the stand foot proceed as described in the enclosed figures and drawings.

L = long feet
S = short feet

Attention!

After fixing the feet, tighten all sixteen screws uniformly!

Push together both tubes as shown in the photography.

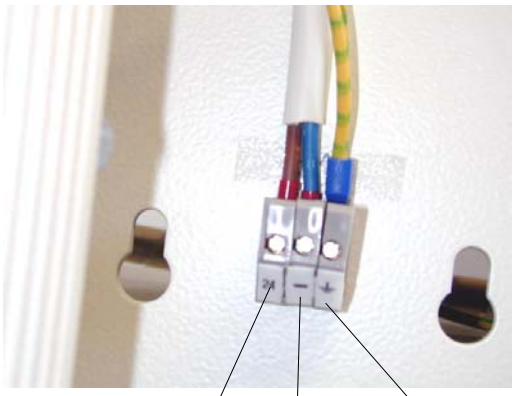
Connecting the battery box

After mounting the stand foot put the battery box on the stand foot. Use the pad included in the scope of supply.

Remark:
Because of the high weight of the battery box it is recommended that this work is carried out by two persons to avoid damage.

block of binding posts

Connect the cables of the stand foot to the block of binding posts at the backside of the battery box, using a screw driver.

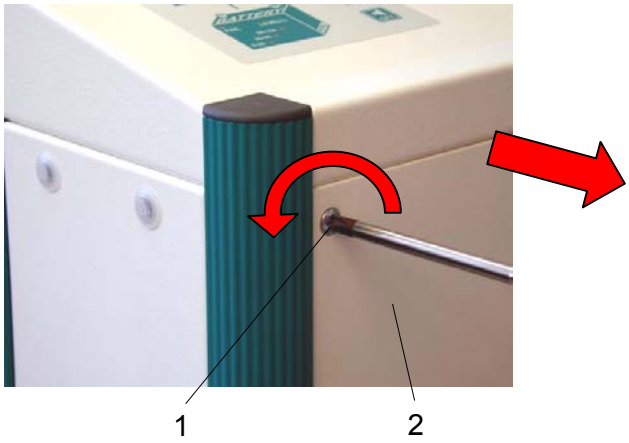


plus minus earthing

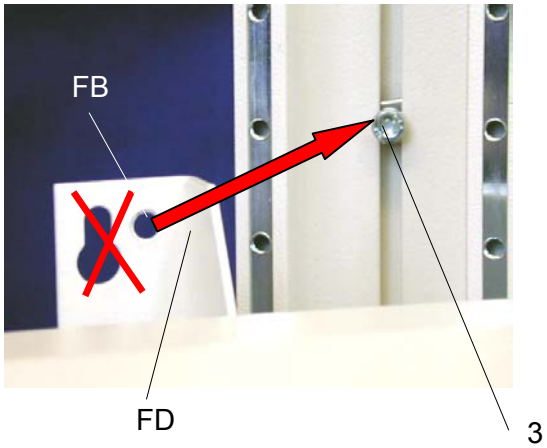
Connect the cables as shown in the picture according to the markings on the block of binding posts.

Secure the cables for **"+"** and **"–"** connection with cable binder.

Fixing the battery box

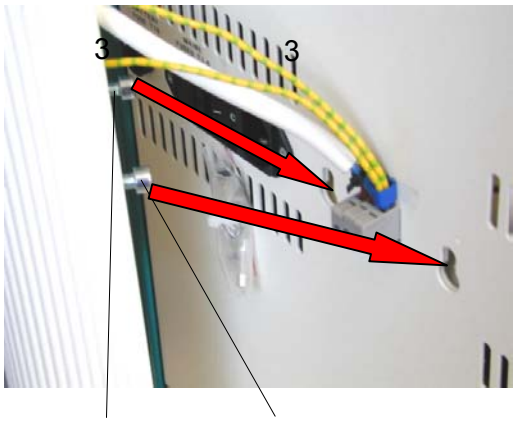


Loosen the six screws **1** at the front plate **2** of the battery box.
Remove the front plate **2**.



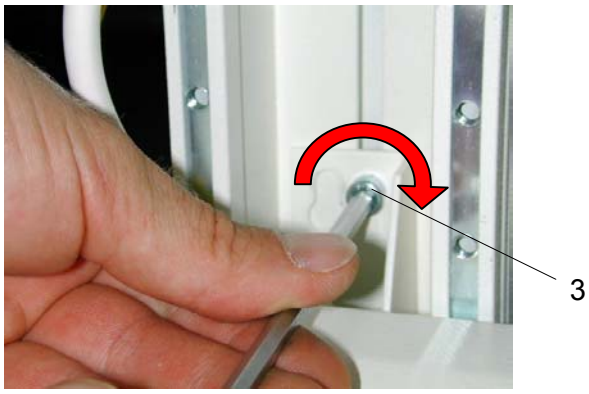
The battery box is fixed at the stand with three screws **3**.

Unscrew the three screws **3** for approx. 5mm and lay the cables of the stand on the fixing device **FD** of the battery box.
Hang up the battery box on the two bottom screws, then use the upper borehole **FB** shown in the left figure as the third fixation point, so that the battery box is in vertical position (tool: Allen key included in the scope of supply).



Attention:
Because of the built-in batteries some assemblies inside the battery box are current-carrying, although the battery box is switched off.

It is not allowed to touch or even damage the electronic components inside the battery box.



Then tighten the screws **3**.

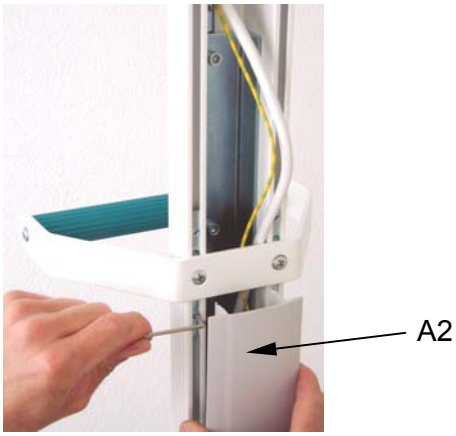
Mounting the covers and accessories

The mounting procedure is described in particular for covers and accessories.

Remark:
The number of covers can be different depending on the design of the stand.

Slightly tighten the two parts of the stand tube at the intersecting point by using the two braces.

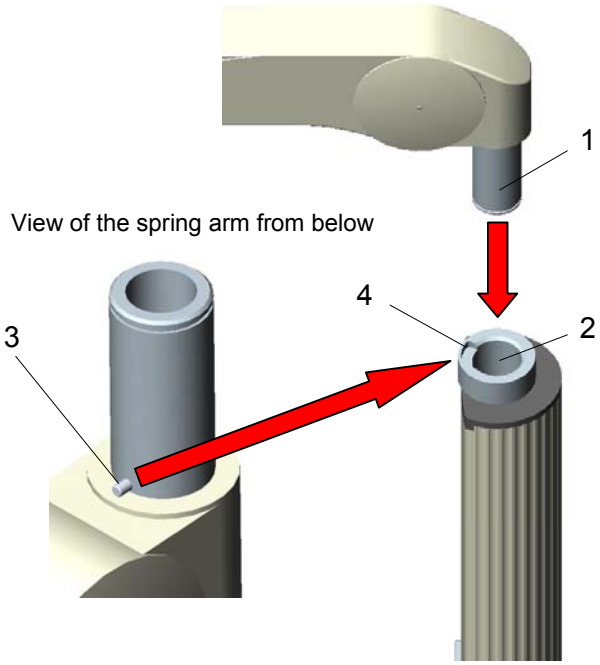
Slip the enclosed handle over the stand tube and fix it with the screws (2 pcs.) and lock washer (1 piece) included in the scope of supply (see photography).



Put the lower protective cover **A2** on the stand tube and fix it.
If necessary, loosen the screws at the two braces in order to arrange the handle in horizontal position.

Attention:
Then tighten all six screws.

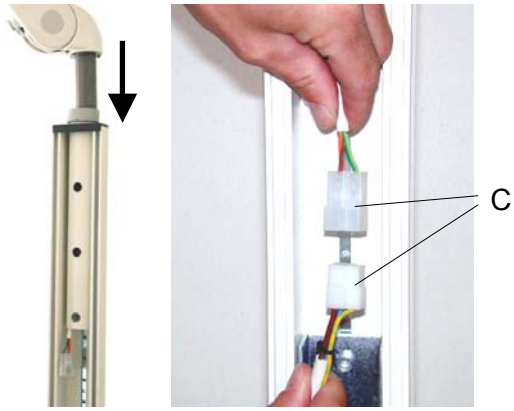
Now put the upper protective cover **A3** on the stand tube and fix it.



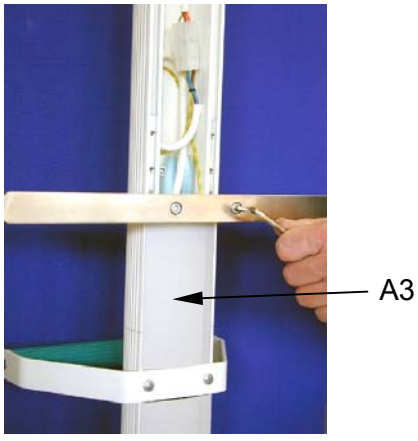
Mounting the spring arm / central spring arm

For mounting the spring arm / central spring arm to the stand tube proceed as follows:

- Insert journal **1** of the spring arm into stand head **2**. The electrical connection is ensured by a cable with plug inside the stand head.
- Make sure, that stop pin **3** at the spring arm lies in countersinking **4** at the stand head as shown in the figure.



Insert the spring arm with cable into the stand tube. Connect the cable of the spring arm with the cable of the stand tube (see plug-in-connection **C** in the left photography).



Mount the open cover **A4** included in the scope of supply.

The stand can be ordered optionally with a clamp rail.
This clamp rail is fixed with the enclosed two screws above cover **A3**.

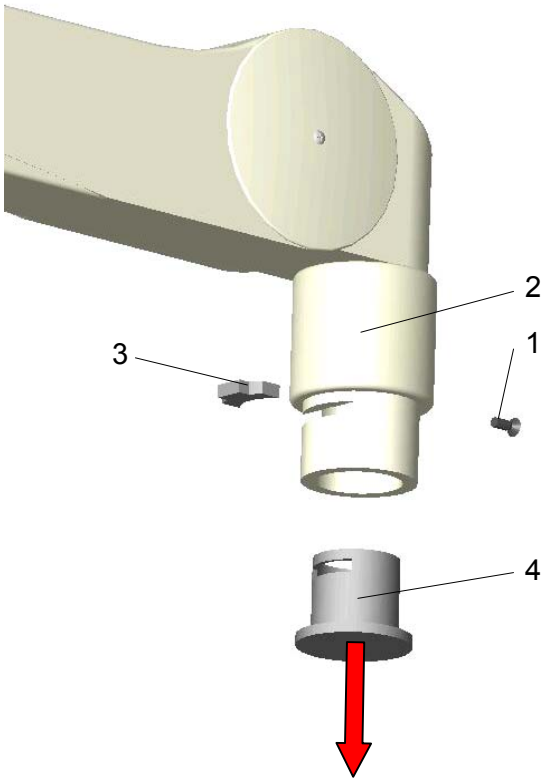
The stand can be ordered optionally with a table.
This table is fixed with the enclosed four screws.

7. Mounting the lamp to the spring arm

7.1 Mounting the lamp to the regular spring arm (Triaflex lamp)

In order to keep the system easy running throughout its life span, we recommend that the hinges should be greased every two years with an acid-free grease.

Caution:
The lamp may only be dismounted (in reverse order to the mounting procedure) after the mounting safeguard has been positioned and screwed tight, as the arm is under spring tension. **Never let the spring arm bounce up!**



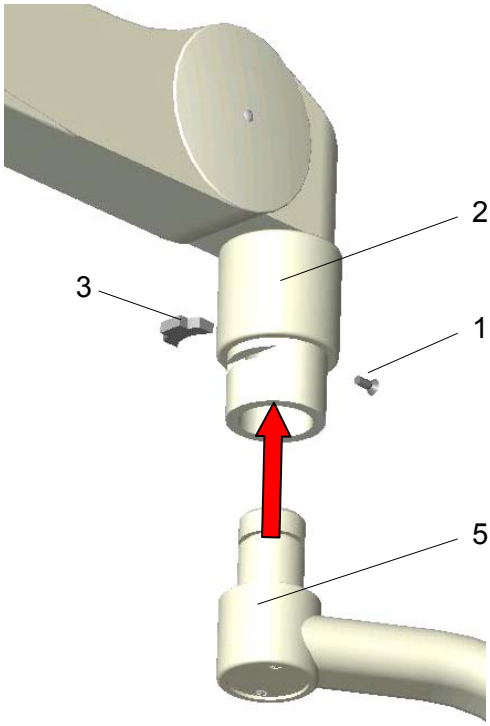
Preparatory work

Attention!
Disconnect the on-site power supply and protect it from being switched on again.

- Disconnect the equipment / pull out the power plug and protect the equipment from being switched on again.

Attention!
Danger of injury: When it is pressed down, the spring arm can jump up suddenly and cause injury.
During the installation of the lamp / device, do not allow anyone to be within the swivelling range of the spring arm.

- Remove the recessed head screw **1** and slide the sleeve **2** up.
- Remove the securing segment **3** with a small-bladed screw driver.
- Remove the protective cap **4** from the mounting.



Mounting

Attention!
Danger of injury: If an incorrect segment is used, the lamp / device may fall out of the mounting and cause serious injury.
Use only original securing segments.

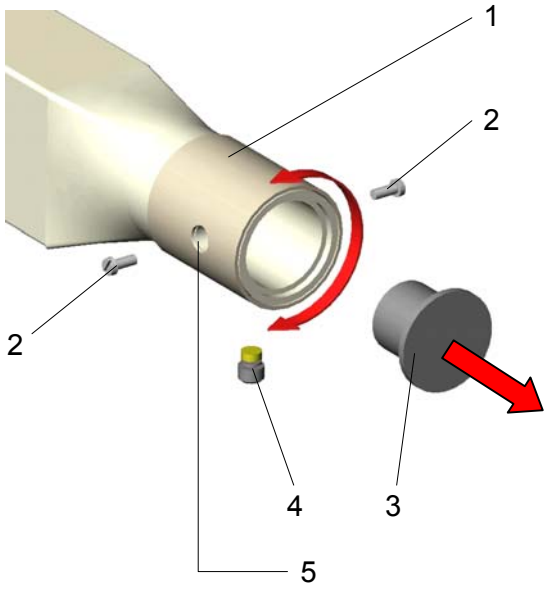
Note:
Maximum lamp / device weight: The lamps / devices must not exceed the weight of the mounted spring system. For details about the spring system please refer to the type plate of your ACROBAT 2000.

Spring versions:

- 1,0 – 3,5 kg;
- 3,5 – 7,0 kg;
- 7,0 – 12,0 kg;
- 12,0 – 18,0 kg

- Insert the bow **5** (with grease) into the mounting of the spring arm, insert the securing segment **3** and slide the sleeve **2** down.
- Install the recessed head screw **1**.
- Check the bow **5** with the lamp / device for firm seating in the spring arm.
- Adjust the spring force as described in chapter 8.
- Adjust the vertical limit as described in chapter 8.

7.2 Mounting the lamp to the central spring arm (Trigenflex / Mach M3 / Mach 380 lamp)



Preparatory work

Attention!
Power off the on-site power supply and protect it from being switched on again.

Attention!
Danger of injury: The spring arm, when it is pressed down, can jump up suddenly and cause injury.
During the installation of the end device, do not allow anyone to be within the swiveling range of the spring arm.

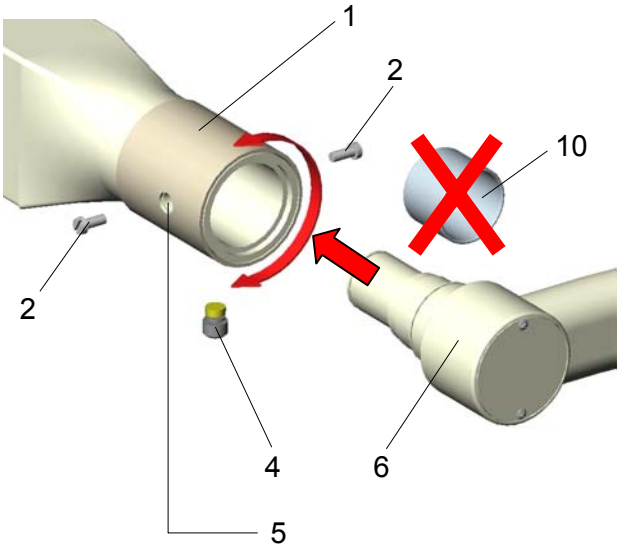
- Turn mounting hole **5** in the sleeve **1** downwards.
- Remove the brake screw **4** at the bottom side of sleeve **1**.
- Turn sleeve **1** by 90 degrees and remove the end device securing screw **2**.
- Turn sleeve **1** by 180 degrees and remove the second end device securing screw **2**.
- Remove the protective cap **3**.

Mounting

Note: Maximum lamp / device weight: The lamps / devices must not exceed the weight of the mounted spring system. For details about the spring system please refer to the type plate of your ACROBAT 2000.

Spring version: 10,0 – 15,0 kg

- Insert the end device **6** into the mounting of the spring arm.



Attention!
Danger of injury: Hold the end device to avoid its falling down.

- Tighten the first end device securing screw **2**.
- Turn sleeve **1** by 180 degrees and tighten the second end device securing screw **2**.
- Turn sleeve **1** by 90 degrees and tighten the brake screw **4**.
- Adjust the brake force so the lamp / the end device always keeps its set position.
- Check the firm seating of the end device.
- Adjust the spring force as described in chapter 8.
- Adjust the verrtical limit as described in chapter 8.

Achtung!
Beim Transport das Stativ
mit Leuchte nur bis 5 Grad kippen
sonst besteht Unfallgefahr!
Attention!
During transport tip the stand
with lamp for maximum 5 degrees,
to avoid danger of injury!

DANGER OF INJURY!

During the transport of the stand with lamp tip the stand for maximum 5° to avoid danger of injury!

Each delivered stand has a sticker with this warning.

In case the stand is moved when positioning the OT-lamp, please make sure, that all rollers are moveable (brakes are loosened, no cables in the movement range of the stand)!

8. Cleaning

Alc. ≤ 20 %

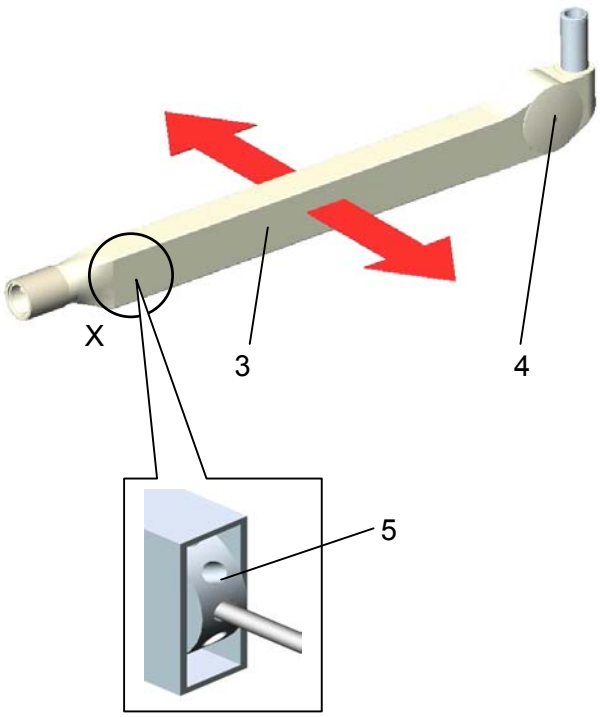
The stand has a high-quality surface, which can be cleaned with conventional cleaning agents.

Pay attention to the following during cleaning:

- Never wipe over the stand with a dry cloth.
- Only use disinfectant with less than 20% alcohol.

9. Adjusting the spring arm

Height adjustment

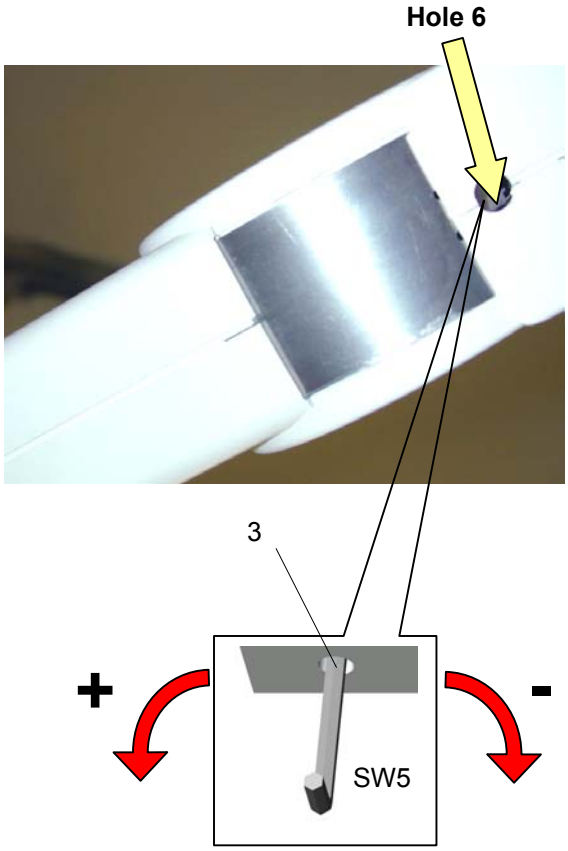


At delivery the spring arm is set in the horizontal position.
The vertical movement of the spring arm can be enlarged up to 45 degrees upwards.

Attention!
Power off the on-site power supply and protect it from being switched on again.

- Power off the pendant system / pull out the power plug and protect the pendant system from being switched on again.
- Remove the two Philips screws **4** and take off the covers **3**.
- At the position marked **X** you can see the adjusting nut **5**.
- Adjust the nut **5** with the enclosed metal pin.
- Mount the two covers **3** and fix them with the two Philips screws **4**.
- Check the firm seating of the covers **3**.

Adjusting the spring force



To adjust the spring force make sure that the spring arm with the lamp / device can come to rest in any desired position.

- Insert the Allan key width 5 in the hole **6**.

If the spring arm drops, the spring force is too low:
- Rotate the adjustment screw to the left (counter clockwise) in the **+** direction.

If the spring arm rises, the spring force is too high:
- Rotate the adjustment screw to the right (clockwise) in the **-** direction.

If the spring arm with the lamp / device cannot come to rest in any desired position after the spring force has been adjusted, the springs must be replaced by a service technician.

10. Properties

- The device is designed for supplying 24V-consumers, which have to be suitable for alternating current AC and for direct current DC.
- A safety low voltage SELV according to DIN VDE 0100, T. 410 is available for a maximum power consumption of 170W.
- In case of power failure the device has a service life of approx. 2,5 to 3 hours in conditions of maximum power consumption.
- The functions of the device run automatically, for example the switch-over function between die mains operation and battery operation and reverse.
- **The device is designed and built according to the regulations of the DIN VDE 0107. Due to its size, power consumption and request for mobility it is not possible to satisfy every parameter of the DIN VDE 0107. Therefore the range of use is the decision of the client.**

11. Location

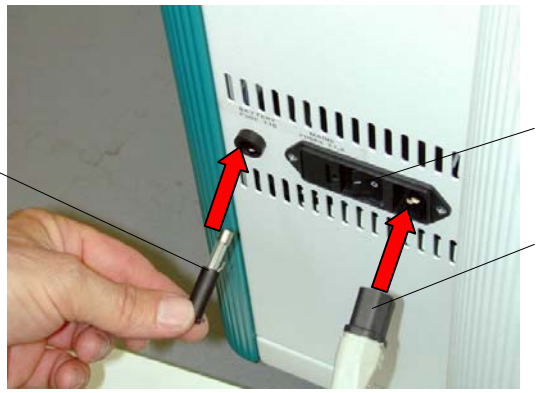
- The device is designed according to the protection type IP 20. The device is to be used only at dry and roofed over locations.
- It is not allowed to cover the ventilation slots. It is not allowed that dirt and other foreign substances infiltrate into the device.
- The environmental temperature should be between 10°C and 25°C.

12. Connecting the user and adjusting the secondary voltage

Attention! This work is to be done only by special trained personnel!

- The 24V – consumer must be connected to the clamps **24 / 0 / earthing** on the rear side of the device.
- The square section of the cable must be at least 1,5 mm². Make sure that the cable is fixed properly and is protected against mechanical damage.
- The voltage of the 24V – output can be adjusted (between two limits) with the built in transformer T1.
- If the mains voltage is less than 230V or a higher primary voltage is needed, the cables for the primary voltage must be connected to the clamps 0 and 220 at the transformer.
- If the mains voltage is higher than 230V or a lower primary voltage is needed, the cables for the primary voltage must be connected to the clamps 0 and 240 at the transformer.

13. First use



- Insert the enclosed fuse **11** T 10 A, 6,3x32 at the backside of the battery box into the fuse holder and turn clockwise to lock.
- The red LED „BATTERY FAIL“ on the control panel is burning.
- Connect the enclosed power cable **12** (length 4m) to the battery box and to a appropriate wall socket (230 V / 50 Hz).
- Turn **ON** the unit at the ON/OFF switch **13**.

- The green LED „MAINS“ is burning now. The green or yellow LED of the „LEVEL“ – marking is also burning. The LED „BATTERY FAIL“ turns off.
- The output of the unit is supplied with 24 V.
- Because of safety reasons this voltage can not be switched off.
- The unit must now be supplied continuously from mains. Do not turn the unit off, except special cases!

14. Mains operation

- As long as the unit is supplied from mains, the lamp will be supplied by the built-in transformer.
- During normal operation status the green LED „MAINS“ is burning, the batteries are charged automatically and they keep their full-charged-status.

15. Battery operation

- If the mains voltage decreases to values under 85% of the rated voltage, the unit automatically switches over to battery operation, and the lamp is supplied with battery current. This status is shown as follows:
  - The green LED „MAINS“ turns off.
  - The red LED „MAINS FAIL“ is burning.
  - The yellow LED „BATTERY“ that shows battery current, is burning.
  - The acoustic signal is buzzing – this signal can be switched off by pressing touch-button „BUZZER OFF“.
  - The battery’s state-of-charge is shown by the LED’s of the „LEVEL“ – monitor.

- When the batteries are fully charged, the lighting time is approx. 3 hours.

- If there is no mains voltage available until the battery is empty, the built-in low-discharge-protection disconnects the lamp from the battery. The LED „BATTERY FAIL“ is burning.

- If the mains voltage increases to values over 95% of the rated voltage, the unit automatically switches over to mains operation and the batteries are charged. The LED „BATTERY FAIL“ turns off.

ATTENTION! **After a disconnection by the low-discharge-protection the next battery operation is possible only after several hours of mains operation and battery charging! It has to be tested, if the unit is ready for another line failure.**

After battery operation / line failure the unit must be supplied with mains voltage and the batteries must be charged as soon as possible.

16. „TEST“-operation

- Before every use (on every day) the status of the unit must be checked by pushing touch-button „TEST“. A line failure with battery operation, as described above, will be simulated for approx. 5 seconds.

- During this time the green LED at the „LEVEL“ – monitor must burn continuously and the yellow or the red LED must remain off. The batteries must be fully charged for this operation.

- If the unit does not function as described above, the cause must be found and the possible damage must be repaired. It may be necessary to replace the batteries or even to change the whole unit.

- Every three months it is necessary to simulate a longer line failure (1 to 2 hours) by disconnecting the unit from mains, in order to test the capacity and lighting time of the batteries. The „LEVEL“ – monitor should be observed during the operation and the parameters should be kept for further comparisons.

- In case the lighting time is under the minimum of 2 hours, the batteries must be replaced.

17. Remarks concerning the batteries

- Avoid low discharges! The red LED „BATTERY FAIL“ should not burn.
- After discharges ensure mains operation as soon as possible, so the batteries can be charged.
- Avoid high operation temperatures.
- Batteries are working parts. They must be replaced after their life time, even if they didn’t function.
- Only use batteries of the same type and the same design. The original batteries can be ordered at the manufacturer.

18. „BUZZER OFF“

- In case of line failure or TEST- operation the acoustic signal is activated. The signal can be turned off by pushing touch-button „BUZZER OFF“.

19. Turning OFF the unit

- When the unit is turned OFF for a longer time (without mains voltage), first charge the batteries, so they are **fully charged**.
- Then remove the battery fuse at the back side of the battery box, turn OFF the unit at the ON/OFF switch and unplug from mains. The batteries are no longer charged now.
- The unit can be stored for max. 2 months.
- After max. 2 months the unit must be reconnected to the mains and the batteries must be charged for min. 24 hours (see also chapter “First use”).

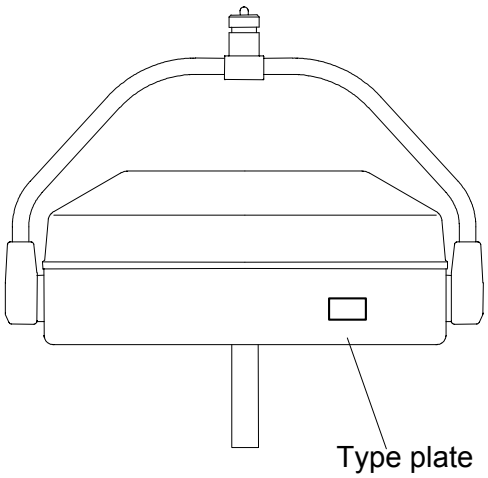
20. Malfunction and possible causes

- No mains operation possible:
  - Mains voltage not available or too low
  - Mains cable not plugged in
  - Mains switch turned OFF
  - Mains fuses out of order
  - Malfunction at the light

- No battery / Test operation possible:
  - Batteries not charged
  - Batteries out of order
  - Battery fuse out of order
  - Malfunction at the light

- At „TEST“ Monitor-LED changes very quick from green to red:
  - Batteries not charged
  - Batteries out of order

21. Technical data



Every mounted lamp, that leaves our factory, has the model name on the lamp housing and a type plate containing all relevant technical data.

Type	OPSV/WG/24-170/3
Type of protection	IP 20 for use in dry rooms only
Class of protection	I.
Isolation E – A	VDE 0551
Power	170W
Suitable for Dr. Mach lamps	Mach 380; Mach M3; Trigenflex; Triaflex
Mains voltage	230 V, 50 Hz
Secondary voltage	24 V AC/DC, adjustable +/- 5%
Battery	24 V / 27 Ah, Type FG 22703
Life span	approx. 10 years according to EUROBAT
Max. environmental temperature	-10°C to +25°C
Switch positions	Regular operation / test operation
Mains fuse	1,6 A delay 5x20
Battery fuse	10 A delay 6,3x32
Overload fuse	Thermal fuse 100 °C reversible in transformer
Weight	37 kg

Graphical symbols with details

Graphical symbol	IEC-standard	Description
~	IEC 417-5032	Alternative current
⎓	IEC 417-5031	Direct current
⏚	IEC 417-5019	Connection for protective conductor
⚠	IEC 348	Attention, notice the documentation
○	IEC 417-5008	OFF (supply, disconnected from net)
|	IEC 417-5007	ON (supply, connected with the net)
	IEC 417-... IEC 878-02-02	Degree of protection type B

Controls

Mains operation ..... LED green
Battery operation ..... LED red, acoustic signal
Battery status..... LED green, fully charged
..... LED yellow, charged 80% - 20%
..... LED red, battery discharged
Battery capacity ..... 26 Ah
Lighting time with fully charged battery ..... 3 hours

Environmental conditions

Betrieb

	Min.	Max.
Temperature	-10°C	+25°C
Relative athmospheric humidity	30 %	75 %
Air pressure	700 hPa	1060 hPa

Transport / Lagerung

	Min.	Max.
Temperature	-10°C	+25°C
Relative athmospheric humidity	20 %	90 %
Air pressure	700 hPa	1060 hPa

22. CE-mark

CE

The products „Emergency lighting“ comply to the standards 93/42/EEC for medical products of the European Community’s Council.

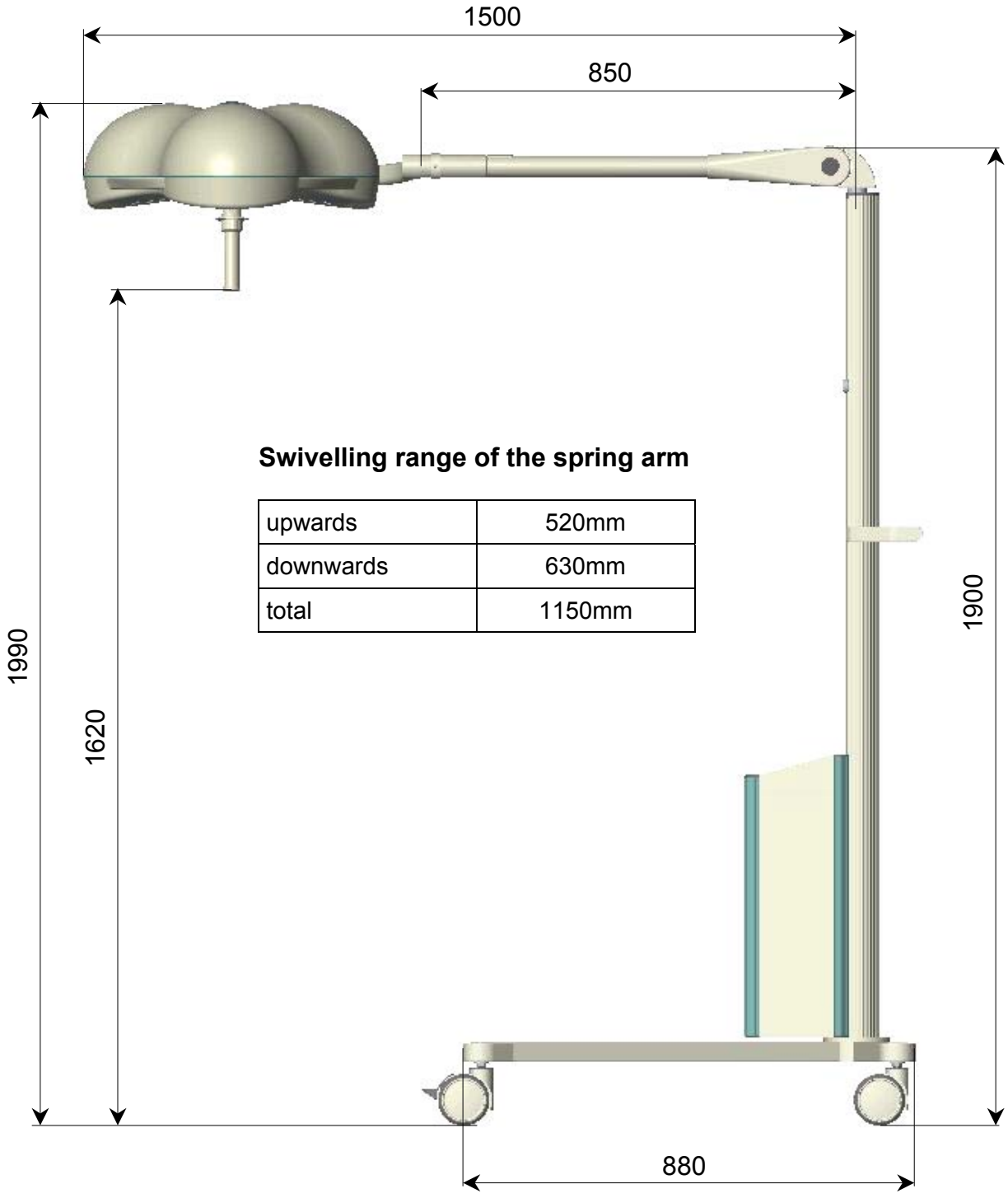
23. Disposal

The OT-lamp doesn’t contain any danger goods.
The components of the OT-lamp should be properly disposed at the end of its shelf-life.
Make sure, that the materials are carefully separated.
The electrical conducting boards should be submitted to an appropriate recycling proceeding.
The rest of the components should be disposed according to the contained materials.

In case the lighting time is under the minimum of 2 hours, the batteries must be replaced.
Batteries are working parts. They must be replaced after their life time, even if they didn’t function.
Battery replacement must be done only by authorized personnel.
Only use batteries of the same type and the same design. The original batteries can be ordered at the manufacturer.

24. Dimensions

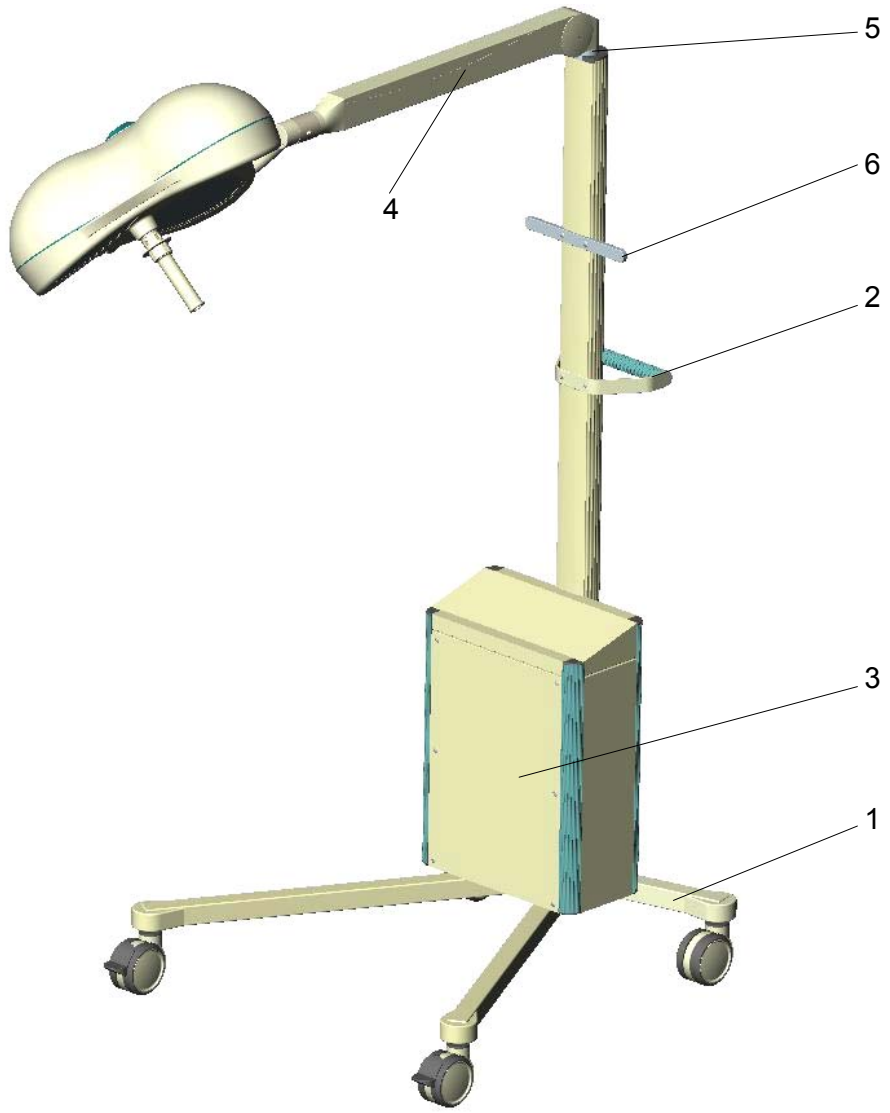
Example: lamp Mach M3



Swivelling range of the spring arm

upwards	520mm
downwards	630mm
total	1150mm

25. Spare parts



Item	Qty.	Name	EDVNO	Remarks
1	1	Stand for OT-lamp	74961001	
2	1	Handle	74961003	
3	1	Mach emergency power unit NVE 170 Power 170 Watt	67581002	
4	1	Central spring arm AC2000 12,0 – 18,0kg	74803005	
5	1	Sliding contact plug	67330002	Not shown
6	1	Clamp rail	74961002	**Option**